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Oral Lesions in Passerine and Psittacine Birds: A Differential Diagnosis

by Dr. Frederick Ruhl*
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Imagine that you are a recently graduated veterinarian working for a mixed animal practice which serves a moderately populated area. One of your more regular clients presents to you a cockatiel which was purchased six months ago. The owner describes a two week history of dysphagia, anorexia, loss of weight and a general loss of activity. Upon physical examination the most outstanding lesions consisted of white, moderately raised areas of well circumscribed nodules and fibronecrotic plaques in the oral cavity.

Based on this history and clinical findings you should be thinking of at least five possible differential diagnoses. The following discussion will focus on these possibilities emphasizing methods of differentiation and treatment.

Hypovitaminosis A is a fairly common syndrome presenting oral lesions in psittacines. Vitamin A is an essential ingredient in the diet of all birds for proper growth, maintenance of healthy skin and mucous membranes, and for good vision. Oral pharyngeal exam of birds lacking the proper dietary levels of vitamin A reveals nodules or thickenings along the choanal margins, the palate, the base of the tongue, or around the glottis.

Histologically, the mucous glands of the oral cavity undergo squamous metaplasia and epidermoid keratinous cysts form in these glands. Due to these changes the resistance of the epithelial tissues to invading pathogenic organisms is lowered. Isolations of bacteria

from these lesions as secondary invaders is quite common. Respiratory and sinus infections are also more common and severe in vitamin A deficient birds.

Dietary vitamin A is manufactured by body metabolism from plant parts containing carotene. Since seeds are generally lacking in carotene, it becomes necessary to supplement vitamin A in the drinking water or by adding cod liver oil to seeds. Rancidity and destruction of vitamin E can be a problem with the use of cod liver oil. Carrots and legumes can be added to the diet as a supplement.

Oral lesions caused by *Trichomonas gallinae* are another consideration in a differential diagnosis of psittacine birds showing oral plaque lesions. *T. gallinae* is a delicate protozoan utilizing five whiplike flagella and an undulating fin-like membrane down one side as its means of motility.

Lesions commonly seen with *T. gallinae* are sticky, creamy white or cheesy yellow necrotic foci in the mouth, pharynx, inner nares, and esophagus. Extension of these lesions into the crop, upper parts of the respiratory tract and even the outside of the beak can occur resulting in dysphagia, anorexia and sometimes noisy respiration. Systemic extension from the alimentary tract can produce cheesy, necrotic spots in the liver, spleen, lung or mucosa of the gut.

Postmortem diagnosis of trichomoniasis is accomplished by examining a small amount of material from a lesion which has been crushed on a slide and warmed to 37C. Antemortem smears of oral secretions or crop fluid can also be used. The flagellates will be observed swimming slowly in a jerky fashion.

Dimetridazole (Emtryl^a) is the drug of

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choice for *Trichomonas* infection provided the bird can swallow. Secondary bacterial infections which flourish in the exudates can be successfully treated with antibiotics. Since strains of *T. gallinae* vary considerably in their ability to produce disease, successful treatment is based on physical examination findings and the extent of the disease. Recovery from mild attacks produces an immunity to more virulent strains whereas severely infected birds often remain debilitated due to damage already produced and probably should be destroyed.

Transmission of this disease is usually by direct contact from beak to beak especially when parent birds are feeding their young. Indirect transmission via drinking water can also occur and it should be noted that small numbers of trichomonads can be inapparently infecting other birds in the same habitat without producing clinical signs.

Candidiasis is another disease in psittacines which should be considered when observing oral lesions. *Candida* colonies are composed of single oval cells which reproduce by budding and under certain conditions develop into chains or hyphae. The disease is usually caused by *C. albicans* which frequently attacks the epithelium of the crop.

Patches of raised, whitish, dead epithelial debris can be seen in the mouth of an affected bird. The crop and esophagus, however, are the main sites of infection and should be examined carefully during the routine physical exam. Scrapings of the lesions should show yeast cells and confirm the diagnosis.

Treatment and prevention of this disease centers around good hygiene and management. Stale food, feces-laden premises, overcrowding and allowing water to slop over into food or litter can contribute to the disease. Chronic debility, prolonged antibiotic therapy and infection secondary to trichomoniasis or hypovitaminosis A can be other reasons for its occurrence. Powdered nystatin by mouth or copper sulfate via drinking water have been effective against this causative agent. Mysteclin-F^b which is a combination of tetracycline and amphotericin B has also been proven effective for oral therapy.

Pox or avian diphtheria, although more common in poultry, turkeys, pigeons and

passerines, has been diagnosed in psittacine birds. The pox virus primarily affects certain areas of the skin, such as around the nostrils, the angle of the beak, around the eye or on the feet and legs. The mucous membranes of the upper digestive and respiratory system can show diphtheritic or fibrinonecrotic unions from avian pox and the lining membranes of the head and its cavities. Epithelial cells affected by pox virus become hyperplastic and hypertrophic. Piling up of infected cells forms "pox" lesions. Bacteria and yeast quickly infect these lesions which can result in septicemia and death of the bird. In the mouth, throat, and on other moist mucous surfaces, the lesions produced consist of white, moderately raised areas of sloughing dead sheets of cells forming a false diphtheritic membrane. Respiration may become difficult when pharyngeal, laryngeal and tracheal lesions are present. Eating can be difficult with oral lesions and anorexia is a common symptom.

Tentative diagnosis of avian pox is usually made by observing extensive scab formation on the skin, diphtheritic membranes in the mouth, illness and oftentimes death within ten to fourteen days from onset. Special laboratory tests such as experimental bird or embryonated egg inoculation to demonstrate disease transmission and microscopic exam of gross lesions to demonstrate intracellular viral inclusion bodies are used for specific diagnoses.

As with most viral infections there is no drug which has direct activity against the pox virus. Treatment of pox lesions involves gentle cleaning of the skin lesions and topical application of mercurochrome. Supportive care must be provided if the bird is systemically affected. Increasing the environmental temperature, systemic antibiotics, vitamin supplementation and tube feeding are often required for seriously ill birds.

Since direct contact with skin lesions, insect vectors and hand feeding are major routes of infection, isolate sick birds to minimize further spread of the disease.

Another consideration for the cause of oral lesions in passerines is capillariasis. Commonly referred to as hairworms or capillary worms, they can be categorized into two groups: those that infect the upper digestive tract and those that infect the small intestine. The former group would be possible causative

^b Mysteclin-F, E. R. Squibb and Sons, Inc., Princeton, N.J.

agents to differentiate when presented with oral lesions. Due to their relative small size (20–25 mm long, 100 μ wide) gross examination of tissues may not reveal their presence unless a fecal exam or histopathological studies are performed.

Lesions produced by *Capillaria* in the upper digestive tract are characterized by mucosal thickening, catarrhal exudation and sloughing of the epithelial lining of the esophagus and crop. This intense inflammation produced while the parasite burrows into the mucosa can lead to plasma protein leakage accounting for the bird's loss of condition. Inapparent infections and secondary *Candida* infections can occur and might be a source for future outbreaks.

Levamisole orally or parenterally in single or repeated doses is successful in the treatment of capillariasis. Experimental use of cambendazole and pyrantel tartrate in passeriforms and psittaciforms has also proven effective.

Environmental sanitation is a necessary measure of control to be used in conjunction with treatment. Steam-cleaning is used to remove eggs from the environment and a vermin control program is utilized to prevent intermediate or paratenic hosts from entering the life cycle of *Capillaria*.

One last consideration, however an infrequent cause of oral lesions, is fibrous tumors of the oral cavity. This is almost exclusively seen in the budgerigar. These growths have the potential to destroy beak substance and even grow into a tumor sizable enough to pre-

vent the bird from eating normally. Unfortunately, diagnosis is usually based on necropsy findings. A firm, irregularly globular, smooth-surfaced mass is seen which on cut surface is smooth, glistening pink-white, and cellular in appearance. Histologically, cells which are closely packed and spindle shaped are seen. In some cases they are arranged in short interlacing fasciculi with variable vascularity.

This has been a brief summary of the major diseases to consider when presented with a history and gross observations of oral lesions in psittacine and passerine birds. Hopefully this presentation will have given better insight to an area which many find hard to deal with and helpful to those who are faced with this type of problem regularly.

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SCAVMA Receives Upjohn Grant

A check for \$500 was recently presented to Iowa State University, School of Veterinary Medicine Student Chapter of the AVMA, by The Upjohn Company of Kalamazoo, Michigan. Chapter president Jan Deuel accepted the donation on behalf of Iowa State University Student AVMA Chapter from Mark Ficken, Upjohn representative.

The Upjohn Company makes similar grants annually to all Student Chapters of the AVMA throughout the United States as a part of the company's program to assist professional veterinary student groups. The grant may be used in any manner prescribed by the student membership.